

## On A New Sulphuric Acid Ester in the Mucus of *Charonia lampas*.

By Tokuro SODA and Fujio EGAMI.

(Received October 5, 1938.)

In the previous paper,<sup>(1)</sup> one (Soda) of us suggested the existence of a new sulphuric acid ester in the mucus of *Charonia lampas* and emphasized that the mucus is very rich in sulphur content but it contains nitrogen only in a small amount contrary to chondroitine sulphuric acid or similar compounds ever known.

As we have recently succeeded in isolating such a substance as suggested before, we will describe its properties. The mode of preparation is somewhat analogous to that of purification of heparin. Its sodium salt is precipitated by absolute alcohol in the state of colourless fiber just like cotton wool. In vacuum (80°) it loses about 10% of its weight. The results of analysis are as follows: N, 0.0–0.2%: Ehrlich's reaction for glucosamine is negative. Sulphate S, 15%; Lison's metachromatic reaction<sup>(2)</sup> for complex sulphuric acid esters is intensely positive. Uronic acid, 20%. Ash, 36% ( $\text{Na}_2\text{SO}_4$ ).

By the action of sulfatase preparation obtained from the liver of *Charonia lampas*, it liberates sulphuric acid and gives reducing substances.

From the foregoing results, it may be regarded as a substance like mucoitine poly(probably tetra)-sulphuric acid, but without amino group. It has a far stronger inhibiting action upon blood coagulation than commercial heparin (Kahlbaum), and moreover it is proved that it can be used for tissue culture in place of heparin.

Chemical Institute, Faculty of Science,  
Imperial University of Tokyo.

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(1) *J. Chem. Soc. Japan*, **57** (1936), 981.

(2) *Bull. soc. chim. biol.*, **18** (1936), 225.